THE UNMARKED CLEAN AMENDED CLAIMS (FOR REFERENCE ONLY):

1. (Currently Amended): A method for making a coordinated and complementary set of holograms comprising at least one hologram, to be used in a system for recording and projecting three-dimensional images, wherein said three-dimensional images are magnified uniformly in all dimensions by a magnification factor, said method comprising:

producing a recording reference beam by passing diffuse coherent light from a coherent light source through a first optical array containing a plurality of image focusing means therein; and

producing an object beam by passing diffuse coherent light from the same coherent light source through a second optical array containing a plurality of image focusing means therein of the same number and arrangement as the first optical array,

a) wherein the distances between the centers of the focusing means of the second optical array are a multiple of the distances between the corresponding focusing means of the first optical array, said multiple being equal to the magnification factor; and,

b) wherein the focal lengths of the focusing means of the second optical array are the same multiple of the focal lengths of the corresponding focusing means of the first optical array.

2. (Currently Amended): The method of claim 40 wherein a movable aperture is applied each of said two optical arrays such that the size and shape of the aperture of the first optical defines each elemental image of an unmagnified integral photograph and the size and shape of said aperture of the second optical array defines each elemental image of the integral photograph magnified, said movable aperture being placed between a diffuser plate and each of the image focusing means contained in the optical array and adjacent to the surface of the diffuser plate, said method comprising:

a) positioning said movable aperture in the first optical array so that it coincides with the position of a first of the elemental images of the unmagnified integral photograph; and,

b) positioning said movable aperture in the second optical array so that it coincides with the position of a corresponding first of the elemental images of the magnified integral photograph; and,

c) producing a recording reference beam by passing diffuse coherent light from a coherent light source through the first optical array; and,

d) producing a recording object beam by passing diffuse coherent light from the same coherent light source through the second optical array; and,

e) allowing the reference and object beams to impinge upon a photographic plate for a sufficient time to expose the hologram; and,

f) thereafter, positioning said movable aperture in the first optical array so that it coincides with the positions of the second of the elemental images of the unmagnified integral photograph, the third of the elemental images of the unmagnified integral photograph, the fourth of the elemental images of the unmagnified integral photograph, and so on, each positioning of the aperture comprising a step in the process; and,

g) at the same time, positioning said movable aperture in the second optical array so that it coincides with the positions of the second of the elemental images of the magnified integral photograph, the third of the elemental images of the magnified integral photograph, the fourth of the elemental images of the magnified integral photograph, and so on, each positioning of said aperture comprising a corresponding simultaneous step in the process; and,

h) for each corresponding step, producing the reference and object beams and in the same manner as they were produced for the first elemental position; and,

i) for each corresponding step, exposing the same photographic plate in the same manner as it was in the previous steps.

3. (Currently Amended): The method of claim 2 wherein short bursts of low intensity laser radiation are used as the source of coherent light for exposure of the hologram.

4. (Currently Amended): The method of claim 2 wherein a third movable aperture is placed in contact with the emulsion of the photographic plate that is to become the hologram and wherein a fourth movable aperture is placed on the opposite side of the photographic plate that is to become the hologram, so that both the third and fourth apertures are always positioned coincidentally so as to permit the maximum amount of light to pass through the photographic plate, and wherein the third and fourth apertures move together with the first and second apertures in such a manner as to expose, one at a time, each element of the coordinated and complementary set of holograms.

5. (Currently Amended): The method of claim 2, further comprising reversing each of the elemental images and retaining the original order and arrangement of the elemental images.

6. (Currently Amended): The method of claim 5 wherein the magnification factor is unity.

7. (Currently Amended): The method of claim 5 wherein the order of the elemental images is reversed.

8. (Currently Amended): The method of claim 7 wherein the magnification factor is unity.

9. (Currently Amended): The method of claim 2 for preparing a hologram to be used for elemental image multiplexing in a system for recording and projecting three-dimensional images, wherein the

arrangement of the elemental images of the unmagnified integral photograph is different than the arrangement of the optical arrays.

10. (Currently Amended): The method of claim 9 wherein short bursts of low intensity laser radiation are used as the source of coherent light for exposure of the hologram.

11. (Canceled)

12. (Currently Amended): The method of claim 39 for preparing a hologram to be used as a front projection holographic screen for reconstructing magnified 3-dimensional images projected from unmagnified integral photographs or holograms, wherein at least three monochromatic laser beams are used to prepare the hologram, such that the three wavelengths of laser light are complementary so as to produce the appearance of white light, said method comprising:

   a) optically splitting the first monochromatic laser beam into a reference beam and an object beam such that the reference beam has a spherical wavefront that appears to have been generated at an expected projection distance and the object beam has a cylindrical wavefront that appears to have been generated at a distance calculated as a focal point for that wavelength[[()]]; and,

   b) exposing a transparent photographic plate with the reference beam and the object beam, wherein the reference beam exposes the entire plane of the photographic plate in all directions, and the object beam emanates from a line of light that extends across the entire photographic plate in the linear dimension at a focal distance [[*f*]] from the surface of the emulsion for that wavelength, said focal distance[[*f*]] being calculated based upon the distance between the line of light and an adjacent line of light; and,

   c) repeating the previous two steps for the second monochromatic laser beam wherein the line of light exposed by the object beam is adjacent to and parallel to the line of light exposed by the first

monochromatic laser, and such that the two lines are not coincident; and,

d) repeating the first two steps for the third monochromatic laser beam wherein the line of light exposed by the object beam is adjacent to and parallel to the line of light exposed by the second monochromatic laser, and such that it is not coincident with the line produced by either the first or second monochromatic laser; and,

e) repeating all of the above steps to ultimately a plurality of parallel adjacent sets of three adjacent parallel lines produced by the three monochromatic laser beams that repeat in groups of three across the entire photographic plate.

13. (Currently Amended): The method of claim 12 wherein the reference and object beams both impinge on the same side of the photographic plate.

14. (Currently Amended): The method of claim 12 wherein the reference and object beams both impinge on opposite sides of the photographic plate.

15. (Currently Amended): The method of claim 12 wherein the object beams are repositioned optically between successive exposures of the photographic plate so as to produce parallel lines.

16. (Currently Amended): The method of claim 12 wherein the photographic plate is repositioned mechanically between successive exposures of the photographic plate so as to produce parallel lines.

17. (Currently Amended): The method of claim 12 wherein the wavelengths of the three monochromatic laser beams can be roughly characterized as red, blue and green, respectively.

18. (Currently Amended): The method of claim 12 wherein the wavelengths of the three monochromatic laser beams are all components of a single laser capable of producing white coherent laser light.

19. (Currently Amended): The method of claim 18 wherein the laser used is a krypton laser.

20. (Currently Amended): The method of claim 18 wherein the reference beam is a spherical wavefront comprised of several or all of the wavelengths produced by the white light laser.

21. (Currently Amended): The method of claim 12 wherein the distance that each real image of the line of light used in the object beam is from the photographic emulsion is the focal length required for the particular wavelength of monochromatic light used to produce its portion of the hologram.

22. (Currently Amended): The method of claim 12 wherein the hologram is comprised of holograms produced as identical rectangular tiles, and the hologram is produced by assembling the tiles.

23. (Currently Amended): The method of claim 38 for preparing a hologram to be used in a system for recording and projecting three-dimensional images as a high quality holographic imaging system to transfer low abberation and low distortion images, said method comprising the steps of:

   a) producing a reference beam by passing coherent light emanating from a laser through a first diffusing screen and further passing the resulting scattered coherent light through a standard projection lens that neither magnifies nor demagnifies; and,

   b) producing an object beam by passing coherent light emanating from the same laser through a second diffusing screen and further passing the resulting scattered coherent light through a high quality lens system specially designed to be abberation and distortion free; and,

   c) exposing the photographic plate with both reference and object beams to produce the hologram.

24. (Currently Amended): The method of claim 23 wherein the reference and object beam impinge upon opposite sides of a transparent photographic plate to expose the hologram.

25. (Currently Amended): The method of claim 23 wherein the reference and object beam impinge upon the same side of a photographic plate to expose the hologram.

26-27 (Cancelled)

28. (Currently Amended): The method of claim 23 wherein the hologram is produced as a reflection hologram.

29. (Currently Amended): The method of claim 23 wherein the hologram is produced as a transmission hologram.

30. (Currently Amended): The method of claim 38 for making a hologram capable of reconstructing a three-dimensional image when used with an optical array containing a plurality of image focusing means therein, said method comprising:

    a) producing a reference beam by passing a laser beam through a standard lens; and,

    illuminating an integral photograph using the same laser; and,

    b) producing an object beam by projecting said laser illuminated image of the integral photograph onto a diffuser plate; and,

    c) allowing the reference and object beams to pass through an aperture or slit, and impinge together upon the surface of a photographic film or plate for a sufficient time for photographic exposure.

31. (Currently Amended): The method of claim 30 for making a holographic film strip to be used in a system for recording and projecting three-dimensional images, wherein said film strip consists of successive holograms each hologram being capable of reconstructing a two[[2]]-dimensional real image of an integral photograph.

32. (Currently Amended): The method of claim 31 for making a holographic film strip wherein the object beam is formed from an image of an integral photograph, such that a three[[3]]-dimensional image produced by reconstruction of said integral photograph has no vertical parallax, thereby

permitting said holographic film strip to be advanced through a projector at constant velocity.

33. (Currently Amended): The method of claim 38 for preparing a second integral photograph to be used in a system for recording and projecting three-dimensional images from a first integral photograph wherein said first integral photograph used together with an optical array comprising a plurality of image focusing means therein reconstructs a three[[3]]-dimensional image that is pseudoscopic, and wherein said second integral photograph used together with an optical array comprising a plurality of image focusing means therein reconstructs a three[[3]]-dimensional image that is orthoscopic, said method comprising:
    a) reconstructing a pseudoscopic real image from the first integral photograph using a first optical array comprising a plurality of image focusing means therein; and,
    b) photographing the pseudoscopic real image onto a photographic film or plate using an identical second optical array.

34. (Currently Amended): The method of claim 38 for preparing a hologram to be used in a system for recording and projecting three-dimensional images from an integral photograph wherein said integral photograph used together with an optical system comprising a plurality of image focusing means therein reconstructs a three[[3]]-dimensional image that is pseudoscopic, and wherein said hologram reconstructs a three[[3]]-dimensional image that is orthoscopic, said method comprising:
    a) producing an object beam by illuminating the integral photograph with coherent radiation from a laser and reconstructing a pseudoscopic real image from said integral photograph using an active optical array comprising a plurality of image focusing means therein; and,
    b) producing a reference beam using the same laser as was used to illuminate the integral photograph; and

c) exposing a photographic plate or film using the reference and object beams so produced.

35. (Currently Amended): The method of claim 38 for preparing a second hologram to be used in a system for recording and projecting three-dimensional images from a first hologram wherein said first hologram reconstructs a three[[3]]-dimensional image that is pseudoscopic, and wherein said second hologram reconstructs a three[[3]]-dimensional image that is orthoscopic, said method comprising:

a) producing an object beam from a pseudoscopic real image reconstruction obtained by illuminating said first hologram with coherent radiation from a laser; and,

b) producing a reference beam from the same laser as was used to illuminate said first hologram; and

c) exposing a photographic plate or film using the reference and object beams so produced.

36. (Currently Amended): The method of claim 1 wherein said coordinated and complementary set of holograms is a plurality of holograms--.

37. (Currently Amended): The method of claim 1 wherein said coordinated and complementary set of holograms is a single hologram.

38. (Currently Amended): The method of claim 36 wherein some of the elements comprising said first and second optical arrays are holograms, and the remaining elements are comprised of other types of optics.

39. (Currently Amended): The method of claims 36, 37, or 38 wherein a hologram is prepared by exposing portions of a photographic plate incrementally until the entire hologram is produced.

40. (Currently Amended): The method of claim 39 wherein movable apertures are used to expose said portions of said photographic plate incrementally until the entire hologram is produced and are used to protect other portions of said photographic plate from being exposed.